STATEMENT OF

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BEFORE THE

U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

SUBCOMMITTEE ON RAILROADS, PIPELINES, AND HAZARDOUS MATERIALS

HEARING ON RAIL CAPACITY

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Introduction

On behalf of the members of the Association of American Railroads (AAR), thank you for the opportunity to discuss railroad capacity. AAR members account for 75 percent of U.S. freight railroad mileage operated, 92 percent of employees, and 95 percent of revenue.

Comprehensive, reliable, and cost-effective freight railroad service is critical to our nation. Today, freight railroads serve nearly every industrial, wholesale, retail, agricultural, and mineral-based sector of our economy. And in the words of the former Railways Adviser at the World Bank, "Because of a market-based approach involving minimal government intervention, today's U.S. freight railroads add up to a network that, comparing the total cost to shippers and taxpayers, gives the world's most cost-effective rail freight service."

Looking ahead, the United States cannot prosper in an increasingly-competitive global marketplace if our freight railroads are unable to meet our growing transportation needs. Having adequate rail capacity is critical to meeting those needs. Railroads must be able to both maintain their extensive existing infrastructure and equipment and build the substantial new capacity that will be required to transport the significant additional traffic our economy will generate.

I respectfully suggest that members of this committee, your colleagues in Congress, and other policymakers have critical roles to play. Indeed, a primary obligation of policymakers is to take steps that assist — and, just as importantly, not take steps that hinder — railroads in making the investments needed to provide the current and future freight transportation capacity our nation requires.

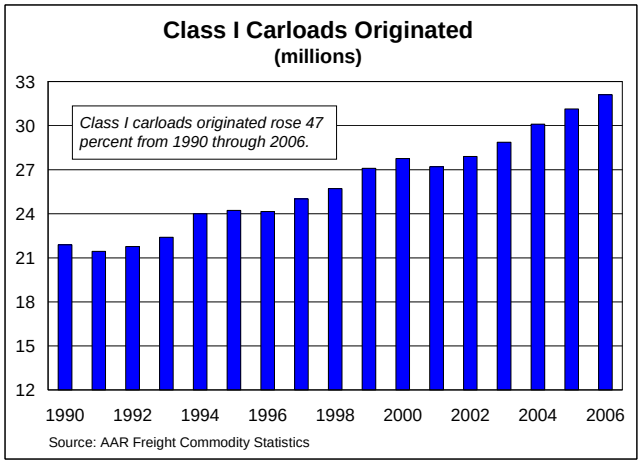
Capacity is a Challenge Everywhere in Transportation, Including on Railroads

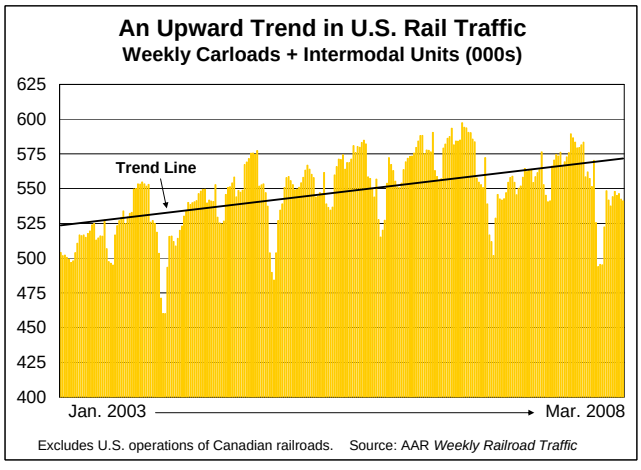
As the National Surface Transportation Policy and Revenue Study Commission noted in a recent report, "Congestion [is affecting] every mode of surface transportation for ever-

lengthening periods each day, as a result of the mismatch between demand and supply of limited capacity."[1]

To be sure, there is a tremendous amount of strength and flexibility in our nation's transportation systems, and the freight is still being delivered by all of the modes. But it is clear that all freight transportation modes are facing capacity challenges today.

Freight railroads face capacity challenges thanks largely to substantial and sustained increases in rail traffic. From 1990 to 2006, Class I tons originated rose 33 percent, carloads originated rose 47 percent, car miles rose 49 percent, and revenue ton-miles rose 84 percent. In each successive year from 1998 through 2006, Class I railroads originated more tons than ever before. Beginning in 2002, they moved more carloads in each year than ever before. Growth in intermodal traffic has been especially rapid. Beginning with the second quarter of 2002, U.S. rail intermodal traffic rose for 20 consecutive quarters, sometimes by double-digit amounts compared with the same period in the previous year.



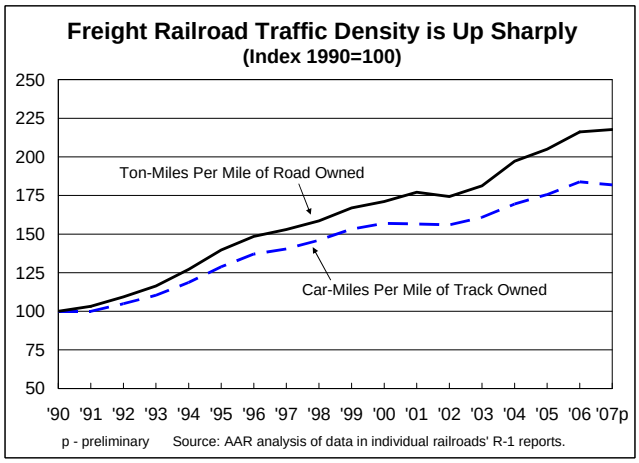


There was a slight decline in rail traffic in 2007, due mainly to the severe problems in the housing and automotive sectors. Even

[1] *Report of the National Surface Transportation Policy and Revenue Study Commission*, Volume 1, p. 4.

so, railroads operating in the United States moved more freight in 2007 than in any previous year except 2006.

As a result of these substantial traffic increases, average freight rail traffic density has increased sharply. Just from 1990 to 2007, Class I car-miles per mile of track owned rose approximately 82 percent; revenue ton-miles per mile of road owned rose some 118 percent.

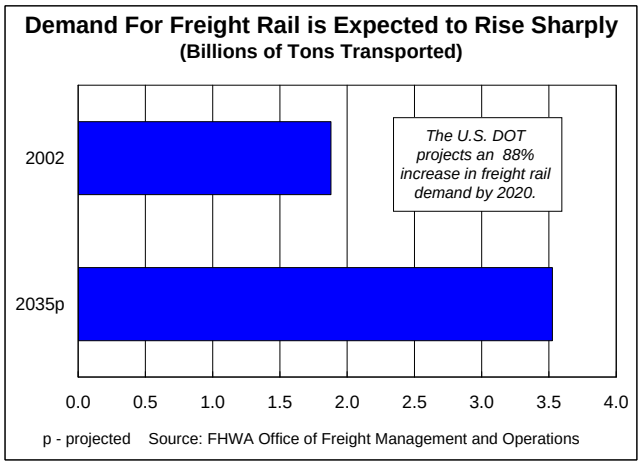


The increase in traffic and traffic density have led to capacity constraints on some rail corridors and points on the rail network. Railroads may differ in the degree to which their capacity is constrained, but there is no question that there is much less room on the U.S. rail network today than there was even a few years ago.

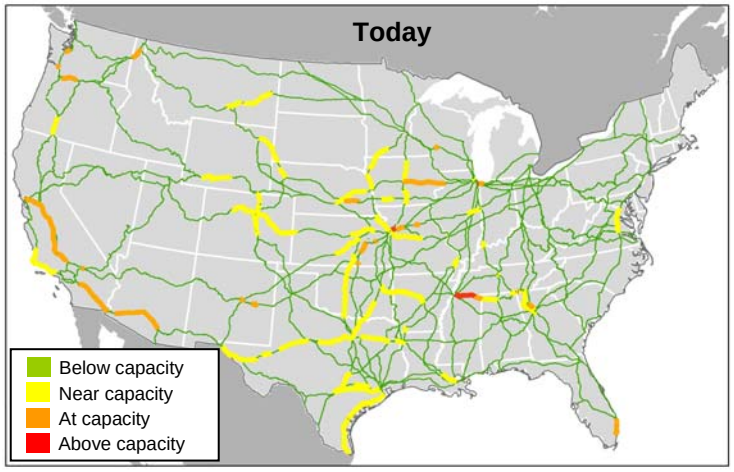
In recent years, solid growth in the economy (the current slowdown notwithstanding) and population, improved rail service offerings, expanding international trade, increasingly-congested highways, sharply higher fuel prices, and other factors have pushed more and more freight to railroads. Even when taking into account the current lessened traffic demand due to the present economic conditions, analysts generally expect market forces to continue to encourage more freight to move by rail in the years ahead.

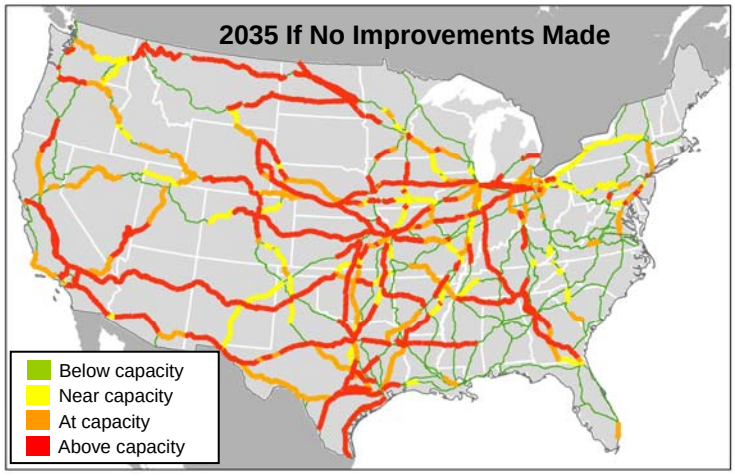
As a result, the long-term forecast is for freight rail traffic to trend steadily higher. For example, Global Insight recently projected a 28 percent increase in U.S. freight rail tonnage from 2006 through 2018. The U.S. Department of Transportation recently forecast that freight railroad demand will rise 88 percent by 2035. If the increase in rail traffic in the 15 years

following 2006 simply matches the rate of growth over the 15 years prior to 2006, by 2021 Class I carriers will be originating approximately 41 million carloads — up from 32 million in 2006.



The magnitude of the looming freight rail capacity issue was also borne out by a recent study by Cambridge Systematics, a prominent economic and transportation consulting firm. The purpose of the study, which focused on 52,000 miles of primary rail corridors, was to estimate the cost of the expansion in capacity necessary for U.S. freight railroads to handle the 88 percent increase in freight rail traffic forecast by the DOT for 2035, assuming no gain in rail's market share of intercity freight movements.





The study found that if rail capacity needs are not properly addressed, by 2035 some 16,000 miles of primary rail corridors — nearly one-third of the 52,000 miles covered in the

study — will be so congested that train flows would be unstable and congestion and service delays would be persistent and substantial. Because the rail system is so interconnected, this outcome would mean that the entire U.S. freight rail system would become, in effect, disabled.

The significance of the network aspects of rail operations cannot be overemphasized. As rail lines are operated at or near full capacity, efficiency (including operational predictability) becomes more critical. Service disruptions caused by inefficient asset utilization can have impacts not only on the railroad involved but potentially throughout the entire rail network.

All of this means that the characteristics of the U.S. freight railroad industry today are significantly different than they were in the past, when traffic levels were much lower and capacity was rarely an issue. The rail network faces capacity challenges now and could face a capacity crisis in the future if the necessary investments are not made. Looking ahead, as their traffic continues to grow, railroads will increasingly need to concentrate on building new capacity and finding ways to better utilize their existing capacity — while continuing to maintain existing capacity at high standards.

Railroad Networks Are Extremely Complex to Plan and Operate

In 2006 (the most recent year for which data are available), the approximately 560 U.S. freight railroads originated 36.5 million carloads of freight — equal to approximately 100,000 carloads, on average, every day of the year.[2] Each day, dozens of different types of freight cars are used to haul a huge variety of products between thousands of different origin and destination pairs on journeys that might be only a mile or two — or could cover several thousand miles.

[2] Rail traffic is not uniformly distributed each day, so on some days considerably more than 100,000 carloads are originated. In fact, the carloadings on the heaviest business day of the busiest season may exceed by 40 percent those of the lightest business day of the lightest season. The variance is caused in roughly equal parts by seasonal demand and the five-day work week of most rail customers. These demand variations have a significant impact on rail capacity requirements.

And unlike other network industries which transmit fungible products (*e.g.*, electricity is the same, no matter who generates it) or products that can readily be routed to particular customers using automated equipment (*e.g.*, electronic signals for telecommunications), railroads must move specific railcars carrying specific commodities from specific origins to specific locations. Railroads can accomplish this only because they devote enormous resources to plan and operate their networks to meet their customers' needs safely and efficiently.

Different Train Types Create Different Demands on the Rail Network

Managing the current and future use of rail network capacity is an extraordinarily complex process that involves a wide variety of elements. These include current and expected traffic volumes; the types of trains to be moved (*e.g.*, unit trains vs. manifest trains, passenger trains vs. freight trains, etc.), their speed, and priority status; the quantity and quality of available assets; the availability of funds for new investments; pertinent laws and regulations; and much more. Sophisticated analytical processes (*e.g.*, advanced computer modeling) help railroads understand and incorporate many of these factors into rail decision making. No computer program, though, is sophisticated enough to incorporate everything that could impact how well a rail network runs at any point in time. Thus, railroads depend critically on the experiences and judgment of their employees.

The mix of train types determines the speed and spacing of trains on a track. All else equal, a corridor that serves a single type of train can usually accommodate more trains per day than a corridor that serves a mix of train types. Trains of a single type can be operated at similar speeds and with more uniform spacing between the trains, in part because they have similar braking and acceleration capabilities. This increases the total number of trains that can operate over a track segment each day. When trains of different types — each with different length,

speed, and braking characteristics — share a track segment, greater spacing is required to ensure safe braking distances and accommodate different acceleration rates. As a result, the average speed drops and the total number of trains that can travel over the corridor is reduced.

Moreover, different train types and customer segments have different service requirements. For example, premium intermodal movements demand high levels of delivery reliability, timeliness, and speed; bulk trains (*e.g.*, coal or grain unit trains) may need consistent, managed service with coordinated pick-up and delivery, but high transit speed is often less important; customers who own or manage their own fleet of freight cars may require railroads to undertake network strategies which help them minimize these costs, such as maximizing the number of annual loaded trips rail cars make; passenger trains require high speed and reliability within a very specific time window; and so on.

In addition, a railroad must be able to move empty freight cars through the network in a manner which positions them to provide service based on continually-changing levels of customer demand.

The extent to which all of these sometimes-conflicting demands seek to use the same portions of the rail network defines the complexity of the management problem. The more complex the demand base which seeks to use the network, the greater the mixture of differing train types, the more complex network management will be, and the greater the required capacity investment.

Rail Network Planning

Like firms in every other industry, railroads have limited resources. Their ability to meet customer requirements is constrained by the extent and location of their infrastructure (both track and terminal facilities); by the availability of appropriate equipment and employees where they

are needed; and by the availability of funds necessary to augment what they already have. The constraints railroads face — particularly those involving their physical network — cannot be changed quickly. It can take a year or more for locomotives and freight cars to be delivered following their order; six months or more to hire, train, and qualify new employees; and several years to plan, permit, and build new infrastructure.[3]

In light of these factors and many more, railroads must design effective operating plans that meet customer requirements within the confines of the physical constraints they face.

The complexity of such a plan is enormous. For example, it must incorporate the differing types of demand placed on various portions of a network, as well as the changes in that demand. Sometimes these changes evolve over several (or more) years and are based on changes in underlying markets — *e.g.*, the emergence of the Powder River Basin as the premiere source of domestic coal, the growth of imported goods from the West Coast, or the development of ethanol markets. At other times, these changes are relatively sudden — brought on, for example, by natural events (*e.g.*, floods or hurricanes), economic factors (*e.g.*, export surges due to a weaker dollar), or the loss or gain of traffic flows of a major customer or group of customers through plant openings or closings or the competitive bidding process. Sometimes these changes can be foreseen; at other times, they are wholly unexpected.

A railroad's operating plan must allocate this demand across a network that has terminal processing constraints (*e.g.*, the number of yard tracks, locomotive facilities, configuration, etc.); line-haul capacity constraints (*e.g.*, number of main tracks and crossover points between them; location and frequency of sidings; types of signaling systems; speed limits; connections with other routes; etc.); locomotive availability (*e.g.*, the number, their horsepower, availability of

[3] Railroads typically have a number of projects far enough along in the planning process that construction can be initiated quickly if funds become available.

support facilities for fueling and maintenance, etc.); and employee constraints (*e.g.*, number, location, crew support facilities, equipment maintenance and servicing personnel, etc.).

On every major railroad, all of these factors must be combined to develop a plan to move traffic safely and efficiently 24 hours per day, every day of the year.

Sophisticated computer models are available to assist in the network planning process. However, these simulation results must be interpreted and validated by knowledgeable railroad personnel who use their judgment and experience as to what works and what does not.

Because of its complexity, the development of a new network operating plan to accommodate substantially-changed conditions typically takes months or years, not days or weeks. (However, refinement of an existing plan is a continuous improvement process.) In essence, the overall planning process must create a number of "mini plans" for each of the various train types (such as premium intermodal, international intermodal, coal, grain, other bulk, automotive, manifest, local, passenger, etc.) that overlay and share the physical network. Each network use plan also attempts to bring resolution to the thousands of competing customer interests that make daily use of the railroad resources.

Managing an Operating Plan

Implementing and managing an operating plan in the field is also challenging. When dealing with networks of this complexity, even the best plans will have gaps that must be filled with the managerial experience of knowledgeable personnel. Moreover, the operating situation is always fluid — day-to-day fluctuations in volume, weather, crew and equipment availability, and more can have an enormous impact on the ability of a railroad to manage to the dictates of its operating plan. Even in the best operation, trains may be late (or early), customers may not

release cars on time, bad weather may ensue, grade crossing accidents may happen, and delays may occur.

Although operating plans often build in some flexibility, where possible, to accommodate these variances, no plan can either predict or accommodate all eventualities for all portions of a rail network. Moreover, accommodation is much more difficult when capacity is constrained. In fact, when capacity is tight, disruptive incidents are more common and recovery takes longer than when the network is not fully utilized. And because the rail system truly is a network, disruptions in one portion of the system can quickly spread to distant points.[4]

The need for safe operations trumps everything else, and proper line maintenance is essential for safe rail operations. However, the need for maintenance adds still another level of complexity to rail planning. In fact, because of higher rail volumes and a trend toward heavier loaded freight cars, the maintenance of the rail network has become even more important. Railroads have no desire to return to the days when maintenance "slow orders" (speed restrictions below the track's normal speed limit) were one of the most common causes of delay on the rail network. That's why one of the most important parts of any railroad operating plan is the accompanying maintenance plan with which it is integrated, and minimizing the impact of maintenance disruptions on rail operations is one of the major reasons for the additional main track capacity that is being added to the rail network today.

Terminals and their operation are another key consideration for preserving fluidity in a rail network. A train may operate without delay over a segment of main line. However, if it cannot enter a terminal due to congestion, then it must remain out on the main line or in a siding

[4] Unlike airline networks, where the period after midnight can usually be used to recover from the previous day's problems, a rail network operates 24 hours a day. Thus, incident recovery must be accomplished while current operations are ongoing.

where it could block or delay other traffic. The ability of a terminal to hold trains when necessary and to process them quickly is one of the key elements in preventing congestion and relieving it when it does occur. Thus, one of the most important factors in increasing capacity for the rail network is enhancing the fluidity of terminals.

Unfortunately, terminals are often one of the more difficult areas in which to add capacity. They are frequently in, or near, urban areas. Expansion generally means high land and, potentially, high mitigation costs. And as discussed further below, even in less urban areas, a rail terminal is rarely considered positive by nearby residents, and its development or expansion to accommodate freight capacity growth is usually the subject of intense debate.

Four-Stage Railroad Capacity Upgrade Process

Railroads typically have four stages in the process of upgrading their capacity. They are explained sequentially below, but in actual practice tend to be used in parallel:

1. Identify and implement process changes that can enhance capacity. This includes a wide variety of steps, such as redesigning the railroad's transportation and operation plans (described above); redesigning, negotiating, and implementing new interchange plans with connecting railroads; redesigning yard and terminal operations; working with customers to improve their inbound or outbound flow processes; changing a maintenance plan; redesigning the process utilized to inspect and maintain equipment, rethinking and implementing new freight car distribution strategies; and redeploying locomotives for more effective utilization.

   Some of these process improvements can be designed and implemented in weeks or months. Others may require a year or more.

2. Develop and deploy improved information technology and processes for utilizing that technology. This includes improvements in such areas as dispatching and control systems; terminal management systems; maintenance planning systems; transportation planning systems; work assignments; locomotive and freight car monitoring; track defect identification and diagnostic systems; and locomotive maintenance management systems. Some of these improvements too can be implemented in only a few months, while others are more complex and may take several years to develop and implement.

3. Acquire and deploy assets that can be used "flexibly." This includes assets such as locomotives, freight cars, and higher-capacity maintenance machinery. These items are not restricted to any particular portion of the rail network, but can be deployed where and

when needed. Trained employees are perhaps the most important of the "flexible" assets. Equipment usually requires at least six months to acquire, often after many additional months of planning and design; employees usually require at least six months to train.

4. Adding more infrastructure, or "iron in the ground." This represents long-term assets that, once in place, cannot be redeployed elsewhere. Usually, they take at least one year to deploy, and frequently take three to ten years to plan, design, permit, and build.

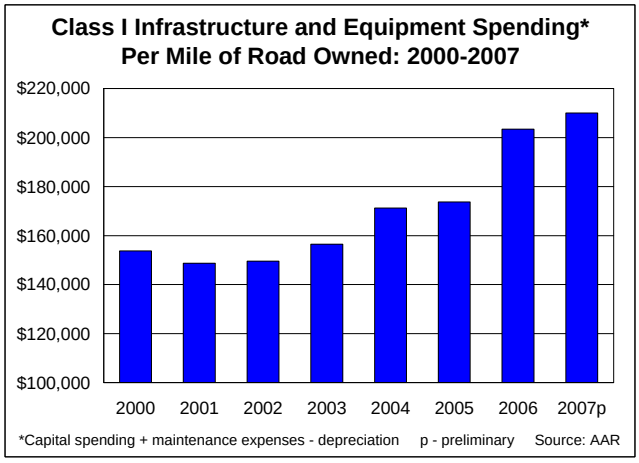
   These include projects such as main line capacity additions (*e.g.*, new main tracks, sidings, and signal systems); new terminal capacity (*e.g.*, intermodal and automotive terminals, freight classification yards, locomotive and freight equipment repair and servicing facilities); large scale upgrades of choke points in urban areas (such as the Alameda Corridor and the series of Kansas City "flyover" projects); new customer access routes; major bridge additions or rebuilds; improving tunnel clearances; and improvements in connectivity between different portions of the rail network.

Railroads Are Working on a Variety of Fronts to Increase Capacity

Railroads are committed to working to meet present and projected transportation demands by addressing the host of factors that influence the fluidity and resiliency of their operations, as well as the operations over the entire rail network. Examples of the railroads' efforts are described below.

Spending on Infrastructure and Equipment

Of the many different factors that affect how well a rail network functions, the basic amount and quality of infrastructure and equipment are among the most significant. For this reason, U.S. freight railroads have been expending, and will continue to expend, enormous resources to improve their asset base. In fact, rail spending for these purposes has never been higher than in recent years, demonstrating the diligence with which railroads are responding to the capacity issue.



Based on preliminary data, Class I capital spending in 2007 was approximately $8.8 billion. In 2003, by contrast, Class I capital spending was $5.9 billion. In addition, in recent years substantially higher percentages of rail investments have been directed to expanding capacity. If maintenance expenses are included in addition to capital spending, from 1980 through 2007, U.S. freight railroads have invested approximately $420 billion — more than 40 cents out of every revenue dollar. In 2006 and 2007, Class I railroads alone devoted more than $19 billion per year to these purposes.

Class I Spending on Infrastructure and Equipment ($ billions)

	Infrastructure				Equipment				Total Infrastructure & Equipment			
	Capital Spending	Mainten. Expenses	Deprec.	Total	Capital Spending	Mainten. Expenses	Deprec.	Total	Capital Spending	Mainten. Expenses	Deprec.	Total
2003	$4.6	$5.8	$2.4	$8.0	$1.3	$7.3	$1.1	$7.6	$5.9	$13.1	$3.5	$15.5
2004	$4.9	$6.4	$2.7	$8.6	$1.3	$7.9	$1.1	$8.1	$6.2	$14.3	$3.8	$16.7
2005	$5.4	$6.5	$3.1	$8.8	$1.0	$8.1	$1.2	$7.9	$6.4	$14.6	$4.3	$16.7
2006	$7.0	$6.8	$3.2	$10.6	$1.5	$8.5	$1.2	$8.7	$8.5	$15.3	$4.5	$19.3
2007p	$6.9	$7.2	$3.4	$10.7	$2.2	$8.6	$1.4	$9.5	$9.2	$15.8	$4.8	$20.2

p - preliminary Numbers may not add due to rounding. Source: AAR analysis of individual railroad R-1reports to the STB

The following is just a sampling of the diverse types of capacity-enhancing investments individual Class I railroads have recently made or will soon be making:

- BNSF plans a $2.45 billion capital commitment program for 2008, including leasing 200 locomotives at a cost of around $400 million and $200 million in track and facility expansion. The 2008 capacity expansion program comes after a record capacity expansion program in 2007. Major 2008 capacity expansion programs include continuing to double- or triple-track the Southern Transcon route, including a second main line across Abo Canyon in New Mexico; continuing to install double-track on a major coal route in Nebraska and Wyoming; expanding intermodal facilities in Kansas City, Los Angeles, and Memphis; and adding sidings between Fort Worth and Houston.
- Canadian National plans capital spending of around $1.5 billion in 2008, including approximately $1.1 billion on track infrastructure, $140 million on equipment, and approximately $250 million on transload facilities and distribution centers to grow the business. More than $300 million in rail infrastructure projects will be in the United States. Among many other projects, CN plans to complete the multi-year $100 million upgrade of the Johnston Yard in Memphis.
- Canadian Pacific plans capital spending of $885 million to $895 million in 2008, about equal to what the railroad spent in 2007. Funds will go to freight cars, locomotives, track renewal, and other key areas.

- CSX plans $5 billion in capital spending from 2008 to 2010. The railroad plans to spend some $200 million each year for the next three years on new locomotives and more than $100 million per year on freight cars, mainly for coal and automotive traffic. Infrastructure projects include terminal expansions in Atlanta, Buffalo, Charlotte, and Jacksonville, as well as a new intermodal terminal in northwest Ohio.
- Kansas City Southern plans capital expenditures of approximately $500 million in 2008. KCS also plans to spend about $65 million to buy 30 new locomotives for U.S. operations.
- Norfolk Southern plans to spend, in 2008, approximately $1.5 billion on capital investments (an increase of $148 million, or 11 percent, over 2007). Investments in 2008 will include a new locomotives and freight cars; the construction or expansion of facilities in Columbus and Maple Heights, Ohio; and major investments in expansion projects related to the Heartland Corridor (from the East Coast to the Midwest) and the Crescent Corridor (which will link the Northeast, Mid-Atlantic, and Central Southeast).
- Union Pacific plans to invest a total of $3.1 billion for capital projects in 2008. Major investment categories include $840 million to increase network and terminal capacity, especially on coal, ethonal, and intermodal routes and in the Houston region. UP also plans to invest $1.6 billion to maintain and strengthen track infrastructure; $490 million to upgrade the locomotive and freight car fleet, including the acquisition of 175 high-horsepower locomotives and new covered hoppers; and $170 million to upgrade information technology systems.

The massive investments railroads must make in their systems reflect their extreme capital intensity. Railroads are at or near the top among all U.S. industries in terms of capital intensity. In fact, from 1997 to 2006 (the most recent year for which data are available), the average U.S. manufacturer spent 3 percent of revenue on capital expenditures. The comparable figure for U.S. freight railroads was 17 percent, or more than five times higher. Likewise, in 2006, railroad net investment in plant and equipment per employee was $662,000 — nearly eight times the average for all U.S. manufacturing ($84,000).

Capital Expenditures as a % of Revenue for Various U.S. Industries: Avg. 1997-2006

Average all manufacturing	**3%**
Food manufacturing	2%
Petroleum & coal products mfg.	3%
Machinery manufacturing	3%
Motor vehicles & parts mfg.	3%
Wood product mfg.	3%
Fabricated metal product mfg.	3%
Chemicals manufacturing	4%
Plastics & rubber products mfg.	4%
Paper manufacturing	4%
Computer & electr. product mfg.	5%
Nonmetallic mineral product mfg.	5%
Electric utilities	13%
Class I Railroads	**17%**

Note: Utilities are 1999-2006
Source: U.S. Bureau of the Census, AAR, EEI

As a further illustration of the magnitude of rail infrastructure spending, the four largest Class I railroads spend far more on capital outlays and maintenance of track and roadway than

the vast majority of state highway agencies spend on their respective highway networks. For example, only the highway agencies of Texas, Florida, and California spend more on roadway capital and maintenance than Union Pacific and BNSF each spend on their networks. CSX and Norfolk Southern are in the top ten compared with all states.

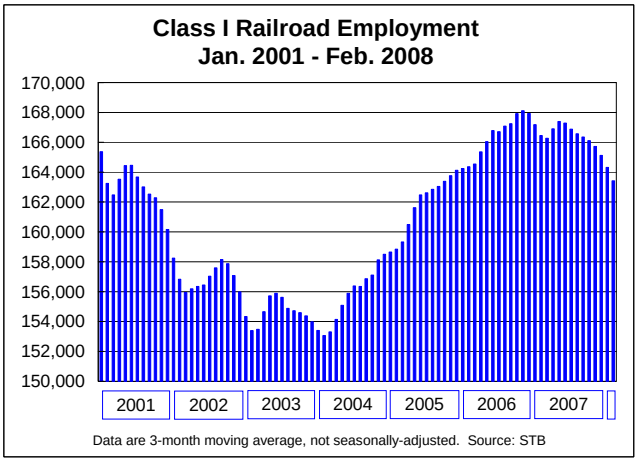
RR Spending on Way & Structures vs. State Highway Agency Spending: 2006 ($ billions)

		Total
1.	Texas	$7.57
2.	Florida	$5.69
3.	California	$4.19
	Union Pacific	**$4.17**
	BNSF	**$3.89**
4.	New York	$3.59
5.	Pennsylvania	$3.30
6.	Illinois	$3.30
	CSX	**$2.62**
7.	Michigan	$2.61
8.	North Carolina	$2.48
9.	Ohio	$2.14
	Norfolk Southern	**$2.12**
10.	Georgia	$1.88

Data include capital outlays and maintenance expenses. Sources: FHWA Highway Statistics Table SF-12 and AAR analysis of R-1 annual reports.

Hiring New Employees

In addition to equipment and infrastructure, personnel are a key determinant of rail capacity, and railroads have been aggressively hiring and training new employees. Class I railroads had 11,000 more employees in December 2007 than in December 2003, when the industry began to reverse a decades-long trend of fewer employees. The number of "train and engine" employees — mainly engineers and conductors who operate trains — was up 11 percent during this period, the number of maintenance of way and structures employees was up 5 percent, and the number of maintenance of equipment employees was up 7 percent.



Infusion of Technology

Technology has always played a key role in expanding rail capacity. Signaling systems have become more sophisticated; trains have become longer and heavier; locomotives have

become more powerful and more reliable; and track structures have become more robust and thus less prone to outages for maintenance or because of failure.

Freight railroads have always been at the forefront in the use of computers and information technology, and today railroads are rapidly expanding their use of these technologies to improve overall efficiency and the fluidity of their operations, thereby adding capacity without adding more infrastructure.

For example, railroads use advanced computer modeling software in a wide variety of rail applications, from automating rail grinding schedules and improving customer demand forecasting to optimizing yard operations. CN, for example, is implementing what it calls "SmartYard," complex computer software that identifies and analyzes every possible combination and outcome for sequencing cars in a large classification yard and simultaneously updates and communicates the car processing plan. The result is more efficient, faster yard operations. Other railroads are engaged in similar efforts.

Recognizing that another way to add capacity is to move more trains faster over the same length of track, railroads are also working with their suppliers to design, implement, and improve innovative computerized "trip planning" systems. These highly-complex systems automatically incorporate and analyze a mix of ever-changing variables (*e.g.*, crew and locomotive availability, terminal congestion, the different priority status of loads of freight, track conditions, maintenance plans, weather, etc.) to optimize how and when cars are assembled to form trains, when those trains depart, and how they are sequenced across the railroad in conjunction with the other trains that are operating.

Trip-planning systems, electronically-controlled pneumatic (ECP) brakes, train control systems, heavy-axle load research, and advanced rail car and track defect detector systems are

just a few of the many technological tools that railroads are using to improve equipment "cycle time" — *i.e.*, the total time it takes for a freight car to be loaded, hauled to destination, unloaded, returned to the same or a different shipper, and loaded again. These tools also increase the capacity of rail mainlines by allowing more precise braking, reducing the number of rail cars required to move a given amount of freight, and dramatically decreasing train delays due to equipment or track maintenance problems.

The benefits of increased efficiency can be seen through the results of rail efforts to "supersize," automate, and increase the velocity of traffic flows where practical. For example, railroads have offered trainload service to grain customers who have built high-speed "shuttle loader" elevators, which dramatically improve the efficiency of transporting grain by rail. At BNSF, for example, a typical grain car in shuttle service hauls approximately three times as much grain over the course of a year as a car in non-shuttle service.

Expanded over a network, this type of operational efficiency can free up substantial capacity for other uses. Union Pacific, for example, has estimated that a one mile-per-hour increase in system-wide velocity frees approximately 250 locomotives, 5,000 freight cars, and 180 train and engine employees to move additional traffic.

Cooperative Alliances and Collaborations

Railroads are also entering into cooperative alliances with each other and with their customers to improve capacity utilization, lower costs, and improve service.

As just one example, in October 2007, Norfolk Southern and Union Pacific announced new westbound intermodal train service that will shorten by a day the trip for standard intermodal freight from the southeastern United States to Los Angeles. This shift began with the completion of the first phase of improvements on the Meridian Speedway — Norfolk Southern's

and Kansas City Southern's joint venture corridor between Meridian, Mississippi, and Shreveport, Louisiana. In establishing this route, the railroads shortened the trip length by 130 miles compared to moving freight via the Memphis gateway.

Challenges to Capacity Expansion

The preceding section details many of the ways that railroads are diligently addressing the capacity issue. However, there are a number of serious impediments to meeting the rail capacity challenge which in many cases have prevented, delayed, or significantly increased the expense of realizing the desired capacity improvements.

The National Surface Transportation Policy and Revenue Study Commission, in its final report released in January 2008, stated that, "Simply put, the Commission believes that it takes too long and costs too much to deliver transportation projects, and that waste due to delay in the form of administrative and planning costs, inflation, and lost opportunities for alternative use of the capital hinder us from achieving the very goals our communities set."[5] The Commission's point often applies to rail infrastructure expansion projects, including projects that involve little or no public financial participation.

Under existing law, a comprehensive regulatory regime preempts state and local regulations (with the exception of local health and safety regulations) that unreasonably interfere with railroad operations. Moreover, detailed environmental reviews, when required, identify the impacts of railroad infrastructure projects and determine necessary mitigation measures.

Nevertheless, often some members of the affected local communities still oppose many rail expansion projects, and their opposition tends to be quite vocal and sophisticated. Trains do make noise, rail operations may at times be disruptive to those who live or work nearby, and the

[5] *Report of the National Surface Transportation Policy and Revenue Study Commissiot*, Volume 1, page 11.

regional or national benefits of rail freight service are often not readily apparent to, or deemed important by, the local population. Even those who recognize the benefits of rail freight service may prefer that railroads run their trains near somebody else's building or through some other town. In many cases, railroads face a classic "not-in-my-backyard" problem.

In the face of local opposition, railroads try to work with the local community to find a mutually satisfactory arrangement. These efforts are usually successful. When agreement is not reached, however, projects can face seemingly interminable delays and higher costs. For example, Norfolk Southern had to endure almost five years of delay and uncertainty before it was allowed to construct and begin operating its terminal in Austell, Georgia, needed to handle rapidly-increasing intermodal traffic within the region. More recently, Union Pacific continues to suffer delays in double-tracking its Sunset Corridor in Arizona due to issues with a state agency.

Often, local communities allege violations of environmental requirements to challenge the proposed project. Railroads understand the goals of environmental laws, and appreciate the need to be responsive to community concerns, but community opposition to rail operations can serve as a significant obstacle to railroad infrastructure investments, even when the opposition has no legal basis.

These types of delays can have significant negative affects on the costs of rail projects, and, in turn, the ability of railroads to respond to service requests. Based on railroad cost index data from the AAR, just in the five years from the first quarter of 2003 through the first quarter of 2008, railroad wage rates rose 15 percent, wage supplements (fringe benefits, such as health insurance for employees) rose 11 percent, and the cost of materials and supplies (which includes such items as rail, crossties, and ballast) rose 52 percent.

Railroads will continue to advocate that the time required for these review processes be shortened without adversely affecting the quality of that result, but until that happens, rail expansion projects will often be delayed unnecessarily.

Today's Earnings Pay for Tomorrow's Capacity

As described above, the railroads are diligently doing everything they believe to be prudent to maintain and expand their capacity to provide service, including committing record levels of investment.

However, it is important to note that because U.S. freight railroads are overwhelmingly privately owned and must finance the vast majority of their infrastructure spending themselves, capacity investments are accompanied by substantial financial risk. As the Government Accountability Office noted in a recent report, "Rail investment involves private companies taking a substantial risk which becomes a fixed cost on their balance sheets, one on which they are accountable to stockholders and for which they must make capital charges year in and year out for the life of the investment.[6] Accordingly, railroad capacity investments must pass appropriate internal railroad investment hurdles — *i.e.*, the investments will be made only if they are expected to generate an adequate return.

For this reason, adequate rail earnings are critical for capacity investment. As the Congressional Budget Office (CBO) has noted, "As demand increases, the railroads' ability to generate profits from which to finance new investments will be critical. Profits are key to increasing capacity because they provide both the incentives and the means to make new investments."[7] If a railroad is not financially sustainable over the long term, it will not be able

[6] Government Accountability Office, *Freight Railroads: Industry Health Has Improved, but Concerns About Competition and Capacity Should Be Addressed*, October 2006, p. 56.

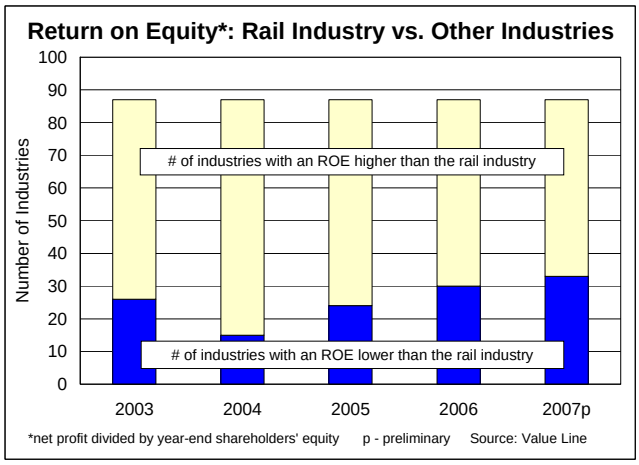
[7] Congressional Budget Office, *Freight Rail Transportation: Long-Term Issues*, January 2006, p. 11.

to make capacity investments to maintain its existing network in a condition to meet reasonable transportation demand, or make additional investments in the replacement or expansion of infrastructure required by growing demand.

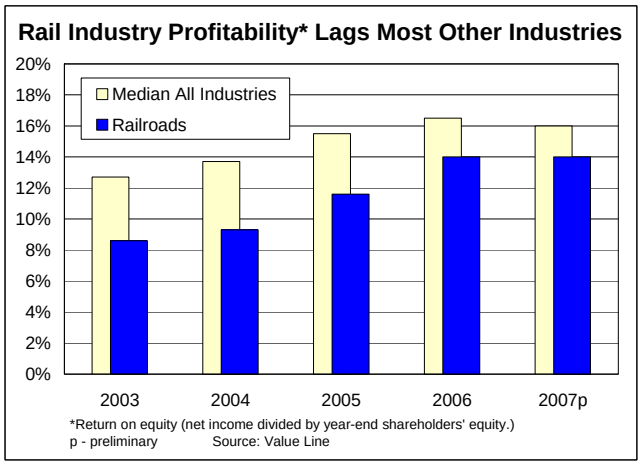
To be sure, railroads in recent years have achieved financial results that are much better than their results since the 1970s. In 2006, U.S. railroads carried more freight than ever before, and their net income was higher than ever before as well. The railroads enjoyed relatively good financial results in 2007 as well.

But these financial results need to be kept in context. Statements about railroads' "record profits" often ignore the fact that rail profitability in earlier years was relatively poor. Thus, an improvement from earlier years may be a "record," yet still fall short of the earnings achieved by most of the other industries against which railroads compete for capital. In fact, that is the case with the rail industry. Rail industry profitability has consistently lagged most other industries — and that is still the case today.

Return on equity (ROE) is a common profitability measure. According to data compiled by Value Line (a financial information firm), the ROE for the rail industry in 2006 was 14.0 percent — possibly the best ROE the U.S. rail industry has ever had. (Value Line's railroad universe includes BNSF, CSX, CN, CP, KCS, NS, UP, and Genesee & Wyoming.) By contrast, the median ROE in 2006 for the 88 industries (encompassing around 1,700 firms) for which Value Line calculates ROE was 16.5 percent — 18 percent higher than the rail figure. In fact, in 2006



railroads ranked tied for 58th among the 88 industries for which Value Line calculates ROE aggregates. Preliminary Value Line data for 2007 indicate that the railroad median (14.0 percent) will again fall short of the median for all industries (16.0 percent).



Data from the Fortune 500 tell a similar story: the median ROE for the four major railroads in the Fortune 500 was 15.0 percent in 2006. By contrast, the median ROE for all Fortune 500 firms was 15.4 percent.

In other words, while recent years may have been the best financial years ever for railroads, they have not been sufficient to bring railroads even to the mid-point among all industries, and the need for financial sustainability is as pronounced today as ever before — especially in view of the projected investment requirements the industry will be facing.

According to the Cambridge Systematics study noted earlier, an investment of $148 billion in 2007 dollars (of which $135 billion is for Class I railroads) will be necessary for rail infrastructure expansion to keep pace with economic growth, meet the DOT's forecast demand, and maintain (but not grow) rail's current market share. That expenditure is in addition to the hundreds of billions of dollars necessary over this period to maintain and replace existing rail infrastructure, and to maintain and replace locomotives, freight cars, and other equipment.

Class I railroads are anticipated to be able to generate (through earnings growth from the additional traffic and productivity gains) only $96 billion of the $135 billion needed for new capacity identified by the Cambridge Systematics study. That leaves a funding shortfall that

could be covered by tax incentives for rail infrastructure investments, public private partnerships, or other means.

Railroads will continue to spend significant amounts of their own funds to address the capacity challenges described above. However, they are, and will continue to be, unable to pay for all of the capacity that would be required to serve all shippers' needs all of the time. Since the amount of rail capital available for investment is limited, investment decisions in these circumstances focus on which investments to choose between, rather than solely whether a specific investment should be made. In such cases, those investment decisions should be based on projected returns that will most favor the long-term sustainability of the rail network.

Public Involvement in Freight Rail Infrastructure Investment

Freight railroads will continue to spend massive amounts to improve and maintain their systems. But even with their improved financial performance, funding constraints will likely prevent railroads from meeting optimal future rail infrastructure investment needs entirely on their own. This funding shortfall means that many rail projects that would otherwise expand capacity and improve the ability of our nation's farms, mines, and factories to move their goods to market; speed the flow of international trade; relieve highway congestion; reduce pollution; lower highway costs; save fuel; and enhance safety will be delayed — or never made at all.

I respectfully suggest that it is in our nation's best interest to ensure that optimal freight railroad capacity enhancements are made. Policymakers can help address the rail capacity funding gap in several ways:

- Rail Infrastructure Tax Incentives. S. 1125/H.R. 2116 (the "Freight Rail Infrastructure Capacity Expansion Act of 2007) calls for a 25 percent tax credit for investments in new track, intermodal facilities, yards, and other freight rail infrastructure projects that expand rail capacity. All businesses that make capacity-enhancing rail investments, not just railroads, would be eligible for the credit.

The budgetary cost of a rail infrastructure tax credit (ITC) would be about $300 million per year, but the stimulatory benefit to the economy would be much greater. U.S. Department of Commerce data indicate that every dollar of freight rail infrastructure investment that would be stimulated by a rail infrastructure ITC would generate more than three dollars in total economic output because of the investment, purchases, and employment occurring among upstream suppliers. We estimate that new rail investment induced by a rail ITC would generate approximately 20,000 new jobs nationwide.

The AAR gratefully acknowledges the support many members of this committee have shown toward H.R. 2116, and congratulates them on recognizing that a rail ITC addresses the central challenge of how to move more freight without causing more highway gridlock or environmental degradation.

- Short Line Tax Credit. Since 1980, more than 375 new short lines have been created, preserving thousands of miles of track (much of it in rural areas) that may otherwise have been abandoned. In 2004, Congress enacted a 50 percent tax credit ("Section 45G") for investments in short line track rehabilitation. The focus was on assisting short lines in handling the larger and heavier freight cars that are needed to provide their customers with the best possible rates and service. Since the enactment of Section 45G, hundreds of short line railroads rapidly increased the volume and rate of track rehabilitation and improvement programs. For example, the replacement of railroad ties, a key component of handling heavier cars, has increased by half a million ties per year in both 2005 and 2006 as a result of the credit. Unfortunately, Section 45G expired in 2007. Pending legislation in Congress (S. 881/H.R. 1584, the "Short Line Railroad Investment Act of 2007") would extend the tax credit and thus preserve the huge benefits it delivers.

- Public-Private Partnerships. Public-private partnerships (PPPs) reflect the fact that cooperation is more likely to result in timely, meaningful solutions to transportation problems than a go-it-alone approach. Without a partnership, projects that promise substantial public benefits in addition to private benefits are likely to be delayed or never started at all because it would be too difficult for either side to justify the full investment needed to complete them. In contrast, if a public entity shows it is willing to devote public dollars to a project based upon the public benefits that will accrue, the private entity is much more likely to provide the private dollars (commensurate with private gains) necessary for the project to proceed.

  Partnerships are not "subsidies" to railroads. Rather, they acknowledge that private entities should pay for private benefits and public entities should pay for public benefits. In many cases, PPPs only involve the public contributing a portion of the initial investment required to make an expansion project feasible — with the railroad responsible for funding all future maintenance to keep the infrastructure productive and in good repair.

- Say No to Reregulation. Reregulation would prevent railroads from earning enough to make the massive investments a first-class rail system requires. Under reregulation, rail earnings, and therefore rail spending on infrastructure and equipment, would plummet; the industry's existing physical plant would deteriorate; needed new capacity would not be added; and rail service would become slower, less responsive, and less reliable.

Public investment in freight rail infrastructure projects is justified because the extensive benefits that would accrue to the general public by increasing the use of freight rail would far exceed the costs of public participation. For example:

- Fuel efficiency – Railroads are three or more times more fuel efficient than trucks. In 2007, railroads moved a ton of freight an average of more than 430 miles per gallon of fuel. If just 10 percent of the long distance freight that moves by highway moved by rail instead, fuel savings would exceed one billion gallons per year.
- Greenhouse Gas Emissions – Greater use of freight rail offers a simple, inexpensive, and immediate way to meaningfully reduce greenhouse gas emissions without harming the economy. Because of railroads' fuel efficiency, every ton-mile of freight that moves by rail instead of trucks reduces greenhouse gas emissions by two-thirds or more.
- Highway congestion – Highway gridlock already costs the U.S. economy more than $78 billion per year just in wasted fuel and time, according to a study by the Texas Transportation Institute. But because a typical train takes the freight of several hundred trucks off our highways, freight railroads reduce highway gridlock, the costs of maintaining existing highways, and the pressure to build costly new highways.
- Pollution – The EPA estimates that for every ton-mile of freight carried, a train typically emits substantially less nitrogen oxides and particulates than a truck.
- Safety – Fatality rates associated with intercity trucking are eight times those associated with freight rail transportation. Railroads also have lower employee injury rates.

The American Association of State Highway and Transportation Officials (AASHTO) has noted that "Relatively small public investments in the nation's freight railroads can be leveraged into relatively large benefits for the nation's highway infrastructure, highway users, and freight shippers."[8] The Congressional Budget Office (CBO) has also concluded that public investment in rail infrastructure should be considered: "Another way of addressing the underpayment of infrastructure costs by railroads' competitors is to provide financial assistance to the railroads." Echoing AASHTO, CBO observed that, "[p]roviding federal aid for a rail

[8] AASHTO, *Freight Rail Bottom Line Report*, p. 1.

investment might be economically justified if the net social benefits were large but the net private benefits to railroads were insufficient to induce them to make such an investment."[9]

Passenger Railroads and Freight Railroad Capacity

Our nation's privately-owned freight railroads are successful partners with passenger railroads all across the country. Around 97 percent of the 22,000 miles over which Amtrak operates are owned by freight railroads, and hundreds of millions of commuter trips each year occur on commuter rail systems that operate at least partially over tracks or right-of-way owned by freight railroads.

Freight railroads recognize the potential national benefits of a strong national passenger rail system. The key question is: under what circumstances can freight and passenger interests advance this worthy goal?

As noted earlier, because of substantial and sustained traffic increases, U.S. freight railroads are moving more freight than ever before, and demand for freight rail service is projected to grow sharply in the years ahead. Passenger rail growth would come on top of growth in freight traffic. That's why, going forward, capacity will likely be the single most important factor determining our ability to provide the high quality rail service that will be essential for both freight and passengers.

While recognizing existing Amtrak statutory authority regarding use of freight railroad-owned facilities, the AAR has developed principles which we believe should govern new passenger rail use of freight-owned facilities:

- Freight railroads should not be forced to give passenger railroads access to their property; rather, access should be voluntarily negotiated.
- Freight railroads should be fully compensated for the use of their assets by passenger trains.

[9] Congressional Budget Office, *Freight Rail Transportation: Long-Term Issues* (January 2006), p. 22.

- Freight railroads should be adequately protected from liability.
- Freight railroads should not be asked to pay for capacity increases needed to accommodate passenger service.

These principles are grounded in the tremendous importance of freight railroads to America's producers and consumers. Freight railroads lower shipping costs by billions of dollars each year and produce an immense competitive advantage for our farmers, manufacturers, and miners in the global marketplace. If passenger railroads impair freight railroads and force freight that otherwise would move by rail onto the highway, those advantages would be squandered. Moreover, highway gridlock would worsen; fuel consumption, pollution, and greenhouse gas emissions would rise; and our mobility would deteriorate — outcomes that are completely contrary to the goals of expanding passenger rail in the first place

As part of its work, the National Surface Transportation Policy and Revenue Study Commission received a report from the Passenger Rail Working Group (PRWG), which provided a long-term vision for passenger rail development in this country. The authors of that report should be commended for helping policymakers focus on the important issue of intercity passenger rail. Freight railroads appreciate that the PRWG concurs that passenger rail progress must be complementary to — not in conflict with — freight rail development.

We believe that future passenger rail initiatives, especially on the scale envisioned by the PRWG, will increasingly require separate assets dedicated to passenger operation, rather than the incremental initiatives most typical of past passenger rail expansion. This more visionary approach would enable faster and more reliable passenger service, and would minimize the substantial operational, engineering, legal, and other impediments that often hinder the ability of freight railroads to accommodate passenger trains.

This approach will be costly, but so will any approach to meaningfully enhancing passenger rail. Policymakers must understand that no passenger system in the world pays for its operating and capital expenses solely from the fare box. But there are substantial public benefits from high speed intercity passenger rail. Freight railroads believe that the public benefits of a truly attractive and competitive national passenger rail capability will exceed public costs, and look forward to working with all appropriate parties to make those benefits a reality.

Conclusion

America today has the best freight rail network in the world. Still, it is clear that rail capacity will have to increase as the economy and population expand in the years ahead. Railroads are working hard to ensure that adequate capacity exists to meet our future freight transportation needs. Meanwhile, policymakers can help by instituting targeted tax incentives for projects that expand rail capacity, engaging in more public-private partnerships for freight rail infrastructure projects, and ensuring that the legislative and regulatory structure under which railroads operate is conducive to further investment in rail capacity.